

REMARKS

The claims have been amended to replace the word "fixed" with --stationary--. This change has been made to better describe the portion of the flexible flap that remains at rest during an exhalation. The specification has been amended to refer to the stationary portion that is recited in the claims.

Claim 59 has been canceled, and claims 66-67 have been added to this application. Thus, claims 33-58, and 60-67 are now pending in this case.

The Examiner is thanked for noting the error in the claim dependency of claim 62.

Claims 33-65 of this application have been noted to conflict with claims in other applications that applicants have pending before the United States Patent and Trademark Office. Applicants respectfully submit that the claims in this application do not conflict with any of the claims that are present in those applications. To the extent that there is a conflict, however, applicants will either cancel those claims or file a Terminal Disclaimer to overcome any double patenting rejection that may exist in this case when it is otherwise in condition for allowance.

The drawings have been objected to under 37 C.F.R. § 1.83(a). Because they do not "show every feature of the invention specified in the in the claims." Applicants have accordingly added a Figure 8 to this patent application, which shows the subject matter pertaining to the surface that mechanically holds the flexible flap against the flap-retaining surface. Support for this amendment may be found in the specification on page 14, lines 35-36 and page 15, lines 14-16. Applicants believe that the written description requirement has been satisfied by virtue of the disclosures at these two locations in the specification.

Claims 33-36, 50-56, and 58-60 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.K. Patent Application GB 2,072,516A to Simpson in view of French Patent 1,209,475. Applicants respectfully submit that this rejection cannot be sustained.

Applicants agree with the Examiner's view that Simpson does not disclose a valve cover that is disposed over the valve seat and that comprises a surface that can mechanically hold the flexible flap against the flap-retaining surface. Applicants, however, do not believe that this subject matter can be gathered from the French patent. Although applicants' attorney is not versed in the French language, it does not appear that the subject matter described in the French patent relates to the field of filtering face masks. It appears that the French patent is describing some type of high-pressure valve that would be used in a field wholly separate from exhalation valves for

filtering face masks. Thus, to the extent that the French patent discloses any valve cover, it certainly is not disclosing a valve cover that resides on an exhalation valve — much less an exhalation valve that would be used on a filtering face mask.

In order to sustain the present obviousness rejection, the United States Patent and Trademark Office must establish that there is some teaching, suggestion, or motivation in the art to combine the teachings in these two separate documents.¹ It is not proper to select isolated disclosures in hindsight and combine them to arrive at the present invention.²

At the present, the record is completely devoid of evidence to combine Simpson's teachings with those of the French patent. The Examiner indicates that it would have been obvious to "modify the valve of Simpson et al. to employ a cover because it would have provided protection for the exhalation valve and because it would have provided a means for accessing the valve for cleaning and/or replacement as taught by the French patent ('475)." Applicants admit that it is well known to install valve covers on exhalation valves that are used on filtering face masks. This well-known fact, however, does not mean that it would have been obvious to use any valve cover from any valve anywhere in the world, particularly from a high-pressure valve that appears to be used in a field wholly distinct from exhalation valves that are used on filtering face masks. If this rejection is to be sustained, the Patent Office must provide evidence that establishes why a person of ordinary skill would have used the teachings in the French patent with those of Simpson.

¹ *In re Fine*, 5 USPQ 2d 1596, 1598 (Fed. Cir. 1989) ("Obviousness is tested by "what the combined teachings of the references would have suggested to those of ordinary skill in the art. But it 'cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination.'").

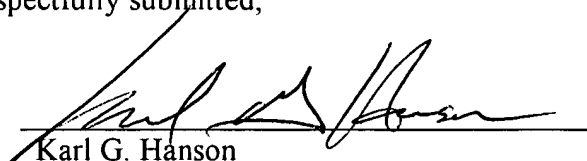
² *Id.* at 1600 ("One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.).

Because such evidence is lacking and is highly unlikely to be forthcoming, given the apparent distinctly-different field in which the valve of the French patent apparently resides, applicants respectfully submit that this application is in condition to be allowed. Please favorably reconsider all of the outstanding rejections and allow this application at an early date.

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Respectfully submitted,

By


Karl G. Hanson

Office of Intellectual Property Counsel
3M Innovative Properties Company
P.O. Box 33427
St. Paul, Minnesota 55133-3427
Facsimile: (651) 736-3833

VERSION WITH MARKINGS TO SHOW CHANGES MADE

Changes to the Specification

Page 7, line 22, between "exhalation." and the word "As" insert a new sentence:

When a wearer of a filtering face mask 10 exhales, exhaled air passes through the mask body 12 and exhalation valve 14. Comfort is best obtained when a high percentage of the exhaled air passes through exhalation valve 14, as opposed to the filter media of mask body 12. Exhaled air is expelled through valve 14 by having the exhaled air lift flexible flap 24 from valve seat 26. Flexible flap 24 is attached to valve seat 26 at a first portion 28 of flap 24, and the remaining circumferential edge of flexible flap 24 is free to be lifted from valve seat 26 during exhalation. The first portion (28) of the flexible flap (24) remains stationary during an exhalation and has a circumferential edge segment that may also remain stationary. As the term is used herein, "flexible" means the flap can deform or bend in the form of a self-supporting arc when secured at one end as a cantilever and viewed from a side elevation (see e.g., FIG. 5). A flap that is not self-supporting will tend to drape towards the ground at about 90 degrees from the horizontal.

Page 11, line 31, after "24" please insert --that is-- and at line 32, between "first" and "portion" insert --stationary--:

FIG. 5 illustrates a flexible flap 24 that is deformed by applying a uniform force to the flexible flap. Flexible flap 24 is secured at a first stationary portion 28 to a hold-down surface 46 and has for a second or free portion suspended therefrom as a cantilever beam. Surface 46 desirably is planar, and the flexible flap 24 is preferably secured to that planar surface along the whole width of portion 28. The uniform force includes a plurality of force vectors 47 of the same magnitude, each applied at a direction normal to the curvature of the flexible flap. The resulting deformation curve can be used to define the curvature of a valve seat's seal ridge 30 to provide a flexible flap that exerts a substantially uniform force upon the seal ridge.

Page 15, line 14, before "Valve" insert --As shown in FIG. 8,--; and, at line 15, replace "(not shown)" with --59--.

Exhalation valve 14 can be provided with a valve cover to protect the flexible flap 24, and to help prevent the passage of contaminants through the exhalation valve. In FIG. 6, a valve cover 50 is shown which can be secured to exhalation valve 14 by a friction fit to wall 44. Valve cover 50 also can be secured to the exhalation valve 14 by ultrasonic welding, an adhesive, or other suitable means. Valve cover 50 has an opening 52 for the passage of a fluid. Opening 52 preferably is at least the size of orifice 32, and preferably is larger than orifice 32. The opening 52 is placed, preferably, on the valve cover 50 directly in the path of fluid flow 36 so that eddy currents are minimized. In this regard, opening 52 is approximately parallel to the path traced by the free end 38 of flexible flap 24 during its opening and closing. As with the flexible flap 24, the valve cover opening 52 preferably directs fluid flow downwards so as to prevent the fogging of a wearer's eyewear. All of the exhaled air can be directed downwards by providing the valve cover with fluid-impermeable side walls 54. Opening 52 can have cross-members 56 to provide structural support and aesthetics to valve cover 50. A set of ribs 58 can be provided on valve cover 50 for further structural support and aesthetics. Valve cover 50 can have its interior fashioned such that there are female members (not shown) that mate with pins 41 of valve seat 14. As shown in FIG. 8, valve [Valve] cover 50 also can have a surface 59 [(not shown)] that holds flexible flap 24 against flap-retaining surface 40. Valve cover 50 preferably has fluid impermeable ceiling 60 that increases in height in the direction of the flexible flap from the fixed end to the free end. The interior of the ceiling 60 can be provided with a ribbed or coarse pattern or a release surface to prevent the free end of the flexible flap from adhering to the ceiling 60 when moisture is present on the ceiling or the flexible flap. The valve cover design 50 is fully shown in U.S. Design Patent Application 29/000,382. Another valve cover that also may be suitable for use on a face mask of this invention is shown in Design Patent Application 29/000,384. The disclosures of these applications are incorporated here by reference.

Changes to the Claims

33. (amended) A filtering face mask that comprises:

- (a) a mask body that is adapted to fit over the nose and mouth of a wearer; and
- (b) an exhalation valve that is attached to the mask body, the exhalation valve comprising:

- (1) a valve seat that comprises:

- (i) a seal surface;

- (ii) an orifice that is circumscribed by the seal surface; and

- (iii) a flap-retaining surface; and

- (2) a single flexible flap that has a [fixed] stationary portion and [a] one free portion and first and second opposing ends, the first end of the single flexible flap being associated with the [fixed] stationary portion of the flap so as to remain at rest during an exhalation, and the second end being associated with the free portion of the flexible flap so as to be lifted away from the seal surface during an exhalation, the second end also being located below the first end when the filtering face mask is worn on a person, the flexible flap being positioned on the valve seat such that the flap is pressed towards the seal surface in an abutting relationship therewith when a fluid is not passing through the orifice; and

- (3) a valve cover that is disposed over the valve seat and that comprises a surface that mechanically holds the flexible flap against the flap-retaining surface.

50. (amended) The filtering face mask of claim 33, wherein the [fixed] stationary portion of the flexible flap [is] includes about 10 to 25 percent of the total circumferential edge of the flexible flap, with the remaining 75 to 90 percent being free to be lifted from the seal surface.

61. (amended) The filtering face mask of claim 33, wherein the valve cover has [further comprises:

- (i)] an opening that is disposed directly in the path of fluid flow when the free portion of the flexible flap is lifted from the seal surface during an exhalation[;

(ii) a fluid impermeable ceiling that increases in height in the direction of the flexible flap from the first end to the second end; and

(iii) cross members that are disposed within the opening of the valve cover].

62. (amended) The filtering face mask of claim [62] 61, wherein the opening in the valve cover is approximately parallel to the path traced by the second end of the flexible flap during its opening and closing.